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EXAMINER

CROWDER, CHUN

ART UNIT PAPER NUMBER

1644

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/009,809

Applicant(s)

EISENBERG ET AL.

Examiner

Chun Crowder

Art Unit

1644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 63-70 and 72-78 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 63-70 and 72-78 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's amendments, on October 22, 2007, are acknowledged.

Claims 1-62, 71, 79, and 80 have been previously canceled.

Claims 63-70 and 72-78 are pending and currently under consideration as they read on the originally elected invention of species of peptide without secondary complex, SEQ ID NO:1 as the first agent with first segment being SEQ ID NO:3, and condition of asthma.

2. This Office Action will be in response to applicant's arguments, filed on October 22, 2007.

The rejections of record can be found in the previous Office Actions, mailed on August 11, 2003, March 17, 2004, April 8, 2005, November 2, 2005, August 2, 2006, March 1, 2007, and September 5, 2007.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claims 63, 66-70, and 72-78 stand rejected under **35 U.S.C. 103(a)** as being unpatentable over Holgate et al. (British Medical Bulletin. 1992. 48;1:40-50) in view of Adridor et al. (Science 1993. 262:1569-1572) and Lin et al. (US Patent 5,807,746) for the same reasons of record set forth in the Office Actions mailed on August 2, 2006, March 1, 2007, and September 5, 2007.

Applicant's arguments in conjunction with various legal citations have been fully considered but have not been found persuasive.

Applicant acknowledges that the use of cargo penetrating peptides is predictable for cell penetration. However, applicant argues that functionality of the cargo once delivered into cells is unpredictable for the claimed mast cell inhibiting peptides.

**APPLICANT'S REBUTTAL EVIDENCE HAS BEEN FULLY
CONSIDERED BUT HAS NOT BEEN FOUND PERSUASIVE.**

Applicant once again argues that the field of penetrating peptides is unpredictable. Applicant is once again relying on the evidence that other cell penetrating peptides (CPPs), albeit capable of delivering cargo peptides, are not able to sustain biological activities of the cargo peptide once inside the cells. Therefore, applicant argues the *prima facie* case of obviousness can be rebutted and the claims should be allowed.

This is not found persuasive for following reasons:

Once again, in contrast to applicant's reliance on unexpected results, it is noted that evidence of unexpected results must be weighed against evidence supporting *prima facie* obviousness in making a final determination of the obviousness of the claimed invention, see MPEP 716.02.

In the instant case, it was known in the art at the time the claimed invention was made that the instant SEQ ID NO:3 could be used to import biological active peptides into cells as taught by Lin et al. It was also known in the art at the time the claimed invention was made that the instant SEQ ID NO:1 could successfully inhibit mast cell degranulation when transferred inside mast cells as taught by Arridor et al. Therefore, one of skill in the art would be motivated to combine the teachings of reference to inhibit mast cell degranulation by linking the CPP peptide of SEQ ID NO:3 with the SEQ ID NO:1 since the CPP peptide of SEQ ID NO:3 taught by Lin et al. is able to transfer biological peptide across cell membrane and SEQ ID NO:1 can inhibit mast cell degranulation when SEQ ID NO:1 is inside mast cells.

Neither applicant, nor the prior art, has demonstrated that the claimed SEQ ID NO:3 behaves unpredictably with respect to transfer functional peptides into cells.

When the reference relied on expressly anticipates or makes obvious all of the elements of the claimed invention, the reference is presumed to be operable. Once such a reference is found, the burden is on applicant to provide facts rebutting the presumption of operability. *In re Sasse*, 629 F.2d 675, 207 USPQ 107 (CCPA 1980). See also MPEP Section 716.07.

In this case, the data (that shows other CCP peptides fail to inhibit histamine secretion) is inadequate evidence that the claimed CCP of SEQ ID NO: 3 is unpredictable. Even if the field of CPP technology is unpredictable, the instant SEQ ID NO:3 has been consistently shown to be predictable in delivery biological cargo peptides and maintaining the functions of said peptides (see Lin et al. and the Sagi-Eisenberg declaration and the Razin declaration filed on June 28, 2007).

Once again, the results of the combination of the teachings of the prior art would be expected because all the claimed elements including SEQ ID NOs: 1 and 3 were known in the prior art and one skilled in the art would have combined the elements as claimed by known methods with no change in their respective functions of importing peptides and inhibiting mast cell degranulation and the combination would have yielded predictable results to one of ordinary skill in the art at the time of invention.

In addition, Arridor et al. found that there has been a recognized problem that the peptide SEQ ID NO:1 was capable of inhibiting mast cell degranulation only when it was transferred into the cells and the mast cells must be permeablized to allow the inhibitory peptide to enter the cell. Lin et al. teach a number of CPPs that give predictable results of transfer biological peptides across cell membrane and maintain the peptides biological activities. Thus, one of ordinary skill in the art could have pursued the known potential options of connecting CPP of SEQ ID NO:3 with mast cell degranulation inhibiting peptide SEQ ID NO:1 with a reasonable expectation of success to achieve the claimed method of inhibiting mast cell degranulation.

Therefore, applicant's arguments regarding unexpected results are not found convincing.

**RELEVANT REBUTTAL EVIDENCE HAS BEEN CONSIDERED FULLY
AND THE PRIMA FACIE CASE OF OBVIOUSNESS HAS BEEN MAINTAINED.**

Applicant's arguments have been fully considered but have not been found persuasive. Applicant alleges that the Examiner has not considered the comparative data of different CPPs.

This is not found persuasive for following reasons:

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All evidence and arguments submitted by applicant have been entered and considered fully. However, the evidence and arguments have not been found persuasive and therefore the rejection of record has been maintained. Applicant's evidence and arguments of CPPs that are not claimed and not able to maintain cargo peptide's biological activities once transferred into cells have not been found convincing because those CPPs have not been claimed. Further, applicant has not demonstrated that the claimed SEQ ID NO:3 behaves unpredictably with respect to transfer functional peptides into cells. In fact applicant's own data appears to further demonstrate what has been taught by Lin et al. in that the CPP of SEQ ID NO:3 is predictable in importing signal sequence-containing peptides and maintaining the functions of the transported cargo peptides.

Therefore, applicant's arguments have not been found persuasive and the rejection has been maintained for reasons of record set forth in the previous Office Actions mailed on August 11, 2003, March 17, 2004, April 8, 2005, November 2, 2005, August 2, 2006, March 1, 2007, and September 5, 2007.

6. Claims 64 and 65 are rejected under **35 U.S.C. 103(a)** as being unpatentable over Holgate et al. (British Medical Bulletin. 1992. 48;1:40-50) in view of Adridor et al. (Science 1993. 262:1569-1572) and Lin et al. (US Patent 5,807,746) as applied to claim 63 above, further in view of Avruch et al. (US Patent 6,103,692) and Jackson et al. (J. Am. Chem. Soc. 1994. 116:3220-3230) for the same reasons set forth in the Office Action mailed 08/02/2006 and March 1, 2007.

Applicant's arguments and the examiner's rebuttal are essentially the same as above in Section 5.

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7. Claims 63-70 and 72-78 are provisionally rejected on the ground of **nonstatutory obviousness-type double patenting** as being unpatentable over claims 1-44 of copending USSN 10/465,826, and claims 1-15 of the copending USSN 11/214,588 for the same reasons set forth in the Office Action mailed 08/02/2006 and March 1, 2007.

Given that a terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) has not been filed; the rejection on the basis of double patenting will be maintained until such a time that allowable subject matter is determined or a terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) is timely filed.

8. Conclusion: no claim is allowed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun Crowder whose telephone number is (571) 272-8142. The examiner can normally be reached Monday through Friday from 8:30 am to 5:00 pm. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (571) 272-0841. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chun Crowder, Ph.D.

Patent Examiner

November 13, 2007

Maheer M. Haddad
MAHER M. HADDAD
PRIMARY EXAMINER